```
1
   Minu
 2
    _____
 3
       1.
 4
5
    Shankar
 6
    _____
 7
        1. Divide without if.
8
        2. Top ranked words.
9
10
   Ayush
11
12

    problem in MapEntry

13
        2. dot product, how.
14
15
16
    Saurab
17
18
        1. function composition problem.
19
20
    _____
21
   ===========
22
   Statements based language
        * C, C++, Java, Python...
23
24
        for(expr1;expr2;expr3){
25
26
        }
27
28
29
   Expressons based language
30
        * Scala, Clojure
31
32
        (defn -main ...)
33
        \{2 + 3 * () + \ldots \}
34
35
        (+ 2 3 ...)
36
        Precedence, evaulates
37
38
        Scala => def f1 = if(expr) arg1 else arg2
39
        Clojure => (defn .. if cond arg1 arg2)
40
41
    _____
42
    Statements based langs =======> mid point <====== expr lgs
43
44
    _____
45
46
    partially defined function to total function =>
47
48
    ===========
49
    (key, val) tuple
50
51
    (into {} ...seq of tuple)
52
53
    _____
54
55
    V1 => {2 4, 5 1, 9 100} [0 0 4 0 0 1 0 0 0 100]
    V2 \Rightarrow \{5, 3, 9, 40, 100, 4, 300, 8\}
56
57
58
    5000 ngrams => dimensions 5000.
59
60
    iterate 1 to 50000.
61
62
    I dont want to go that far.
63
64
    Accumulates: keys #{2, 5, 9} #{5, 9, 100, 300}
```

```
66
     Union of two sets, converts to vec, sort.
67
     [2, 9, 9, 100, 300] => iterate to these 5 values.
 68
 69
 70
     (get v1 2) * (get v2 2)
 71
 72
     reduce to +.
 73
 74
     _____
 75
     Relevant Words Optimization
76
     _____
 77
 78
     1000 words
 79
 80
     i_word => iterate to 1000 words
 81
     Inverted index:
 82
 83
 84
     player => {pla, lay, aye, yer, play, laye, ayer}
 85
 86
     pla => [play, plays, plan]
 87
     lay => []
 88
 89
     _____
90
 91
     [[play, plays, plan] [] []]
92
     flatten, unique
93
94
     100 words.
95
96
     _____
97
98
     function composition
99
     f(x) \Rightarrow x^{\wedge}...
100
101
     g(x) =>
102
     f(g(x)) \Rightarrow
103
104
     g(f(x)) \Rightarrow
105
106
     f(g(x)) != g(f(x))
107
     TF/IDF metric: term frequency (no. of appear) * inverse document frequency (no of word that
108
     gram presence)
109
     _____
110
111
     System Evaluation
112
113
     Precision
114
     Recall
115
     FMeasure
116
117
     thesis: google (santa basnet theis)
118
119
120
121
122
123
124
125
126
127
```